informed student in answer to an examination question. Of more importance is the chapter on bleaching powder and hypochlorites, and the description of recent methods of electrolytic bleaching is of special value. There can be no question that these methods are destined to effect a fundamental change in our textile industries. Already they have displaced a considerable amount of bleaching powder, and their application is rapidly extending, especially on the Continent, where the plants of Schuckert, Kellner, and Oettel are largely employed.

The chapters on the manufacture of hydrochloric acid, bromine, and iodine present no special features of novelty. Until the outbreak of the war practically the whole of the European supply of bromine came from the Stassfurt deposits, but large quantities are now finding their way into commerce from America. The mineral springs of Ohio contain nearly four times the amount of magnesium bromide that is present in the mother liquors obtained from carnallite. The account of the iodine industry is mainly abstracted from Prof. Henderson's article on that subject in Thorpe's "Dictionary of Applied Chemistry." The short chapter on hydrofluoric acid is of interest as showing the increasing commercial importance of this substance, not only in etching glass, but in the purification of graphite from silica, in dyeing, and in the spirit and brewing industries.

The final chapter on peroxides and peracids gives a short description of the more technically important peroxides of the alkalis and alkaline earths, which come into commerce as "oxone," "oxylith," etc., and the various perhydrols, including hydrogen peroxide. The account of the peracids and their salts deals with the so-called persulphuric acid and permonosulphuric acid (Caro's acid) and the persulphates of the alkalis; sodium perborate (used in certain "dry" soaps and as a washing and bleaching agent); and the alkaline percarbonates. These substances have at present only a slight technical importance, but their use is gradually extending.

OIL SEEDS AND THEIR PRODUCTS.

The War and New British Industries. Imperial Institute Monographs. Oil Seeds and Feeding Cakes, with a Preface by Dr. W. R. Dunstan. Pp. xxiii + 112. (London: John Murray, 1915.) Price 2*s.* 6*d.* net.

IF the war has no other results, it is at least compelling us to examine our affairs in such detail as we have never before attempted, and the examination has brought to light all sorts of curious facts about industries that we ought to have started and did not, and products that we ought to have made for ourselves but purchased instead. Who, for example, would have supposed that the palm-kernel oil used in this country, and grown in British West Africa, had to be pressed out in Germany? It is not to be imagined that the British mills were unequal to the task; but somehow they did not do it, and consequently the outbreak of war threatened West Africa rather seriously. Fortunately, Sir Owen Philipps, the chairman of the West African Section of the London Chamber of Commerce, took the matter up, and equally fortunately the Imperial Institute energetically turned its attention to the whole problem of oil seeds affected by the war. The Institute has already published some important reports on the subject, which are now embodied in the book under review.

The substances dealt with are copra, palm kernels, ground nuts, sesame seed, and mowra seed. All these are produced largely in the British Empire; most of them were sent in great quantities to Germany and Austria, where the oil was expressed, the residues made into feeding cakes for stock (except in the case of sesame and mowra seed), and both these commodities were re-exported to the countries needing them.

The fact only wants stating to compel attention, and Prof. Dunstan has wisely contented himself with a recital of economic uses of the oils and residues, the amounts available, the markets to which the seeds have hitherto gone, and the possibilities of extending the industry. No more eloquent testimony could possibly be adduced to prove the need for establishing this industry in our own country at the earliest opportunity.

The utilisation of oil seeds presupposes two distinct conditions. There must be a demand for the oil, and it must be possible to utilise the residual "cake" left after the extraction. Usually the oil finds application without difficulty. The higher qualities are used for margarine, vegetable butter, olive-oil substitutes, etc.; lower grades for soap-making, lubricating, and illuminating purposes. The residual cake presents a more difficult problem. On the Continent, the copra, palm-nut, and ground-nut cakes are used as cattle food, while the sesame and mowra are unsuitable, and have to find other applications; but in this country the farmer is so well satisfied with linseed and cotton-seed cakes that he sees no reason why he should take up any others. It is here that the crux of the situation lies; the farmer cannot be expected to purchase a product solely for the convenience of the oil mills, nor is it any use trying to badger him into doing so by sending him

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pamphlets about food values. The new products must undersell the old ones, and then they will soon begin to find buyers.

Prof. Dunstan and his staff are to be congratulated on the bold way in which they have grappled with the problem and the lucid statement they have drawn up. Already they see some results of their labour; shipments of seeds are beginning to go to Hull to be pressed, and the residues (which alone present any difficulty) have been put under investigation at the various agricultural colleges. Only gross mismanagement can prevent the development of the new industry—unless after the war the Germans again subsidise their own industry so as to extinguish ours, as it is said they did on an earlier occasion when attempts were made to work up the seeds in this country.

E. J. R.

PUBLIC HEALTH ADMINISTRATION.

A Manual for Health Officers. By J. S. MacNutt. Pp. x+650. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1915.) Price 12*s.* 6*d.* net.

IN this country there are numerous manuals of public health, detailing the duties of medical officers of health and other sanitary officers. In the United States we believe the volume here noticed is the first to review public health administration from a practical viewpoint. Part i. is concerned with the organisation and powers of health authorities, part ii. with public health administration.

In a community consisting of separate States, each possessing home rule in sanitary matters, there is evidently much scope for differing regulations. Such differences exist, and we should have liked a fuller statement of the types of legislation and administration than is given in this manual. The information given is, however, clearly set out, and the reader wishing for guidance will find in this book much information in regard to the various classes of service—inspection service, medical service, public health nurse, laboratory service, veterinary service, labour, legal counsel and service.

State organisation is vested in a board or in a commissioner, more often in a board. In Massachusetts this consists of seven persons appointed by the governor, with the advice and consent of his council, for a term of seven years. In New York State, on the other hand, power is vested in a commissioner of health, assisted by an advisory council consisting of two laymen, one sanitary engineer, and three physicians. In both arrangements, democratic control in this reputedly democratic country is indirect and remote, and the medical professions exert a predominant influence. As time passes and experience becomes riper, it will be interesting to compare American city experience with English city experience in sanitary matters. In the latter, as is well known, the electors can more directly and more swiftly influence and alter the constitution of the sanitary authority; and although this sometimes means selfish obstruction to sanitary progress, it necessitates progressive public education in local sanitary administration, and there is seldom serious relapse in progress made. Nor is "graft" so conspicuous in English as in some American cities.

It is remarkable that the States have only in an embryonic stage any central and national health organisation corresponding with that of the English Local Government Board. There is much agitation on this subject; and although the statement sometimes made that "Uncle Sam" spends millions on the health of hogs and little or nothing to promote the health of human beings is exaggerated, it contains a modicum of truth.

The gaps in official administration are much more largely filled up by voluntary associations in America than in this country; and anyone wishing to study the problems of charity, of tuberculosis, of housing, and of child welfare, would need to go largely to these societies for information and for insight into some of the best American work.

Excellent sections of this book are concerned with exploding the sanitary fallacies surviving from an earlier period. The sanitary significance of dirt is stated with discrimination. The limited *rôle* of sewer gas and foul odours is defined; and the error of supposing that running water will more quickly purify itself from pathogenic germs than stagnant water is shown.

Each communicable disease is dealt with in turn, and the succinct advice given is sound and reasonable. The following statement from the section on tuberculosis is the basis on which modern administrative control over this disease is founded. "Experience shows that the normal human system is capable of resisting small doses of infection when it would succumb to a heavier dose, and it is just these heavier doses which supervision over the germ-shedding patient prevents."

In regard to small-pox, it is urged that a hospital for this disease "may be a special department of a regular contagious disease hospital, and, if properly conducted, need not be located at a distance from other habitations. . . . Certainly air infection out of doors is practically nil." This is in direct contradiction to the rigid rule of the

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